Clarion

SERVICE MANUAL

Closer Relations through "CLARION SERVICE MANUAL"

MODEL GA-501E

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CLARION (HONG KONG) CO., LTD, 526, Ocean Centre, Canton Road, Tsimshatsui, Kowloon, Hong Kong Tel: 3-690528 Telex: HX64293 CLAHK

■SPECIFICATIONS:

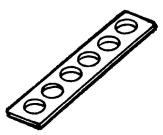
Circuit system:	B.T.L (Balanced, transformerless) circuit
Maximum output:	25W (Typ.)
Rated output:	12W (at 1KHz, less than 3% distortion, $R_L=4\Omega$)
Frequency response:	30Hz to 20KHz (±3dB 1KHz 0dB=2.45V)
S/N ratio:	More than 70dB
Input impedance:	17KΩ
Rated input:	100mV (at 12W output)
Semiconductors:	1 IC, 14 transistors, 5 diodes
Output impedance:	4Ω or 8Ω
Rated power voltage:	14V ⊖ ground (10.8V to 15.6V)
Current consumption:	Less than 2.5A (at maximum output)
Weight:	0.55kg

Dimensions:	Width 70mm
	Depth 150mm
	Height 50mm

Built-in protection circuit using diode.
(A protection fuse of 2A rating must be used.)

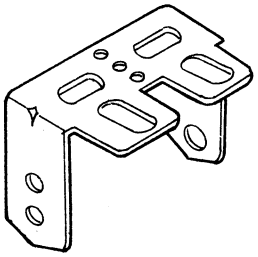
■COMPOSITION:

	Main unit	1
	Documents bag	1
300-4976-00	Mounting bracket	1

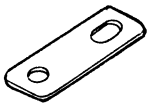


Printed in Japan 298-2139-00

300-5700-00	Mounting bracket	1



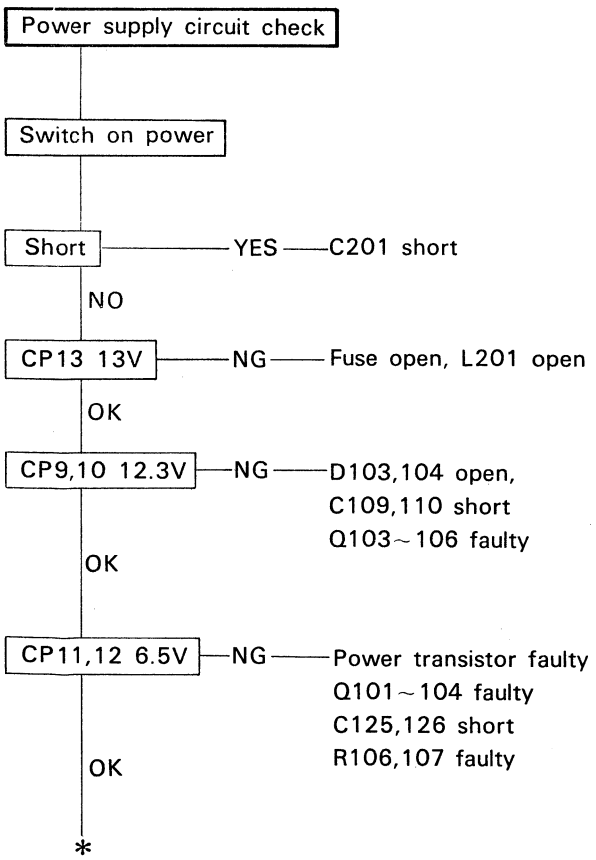
	Accessories bag	1
330-6370-00	Joint bracket	2

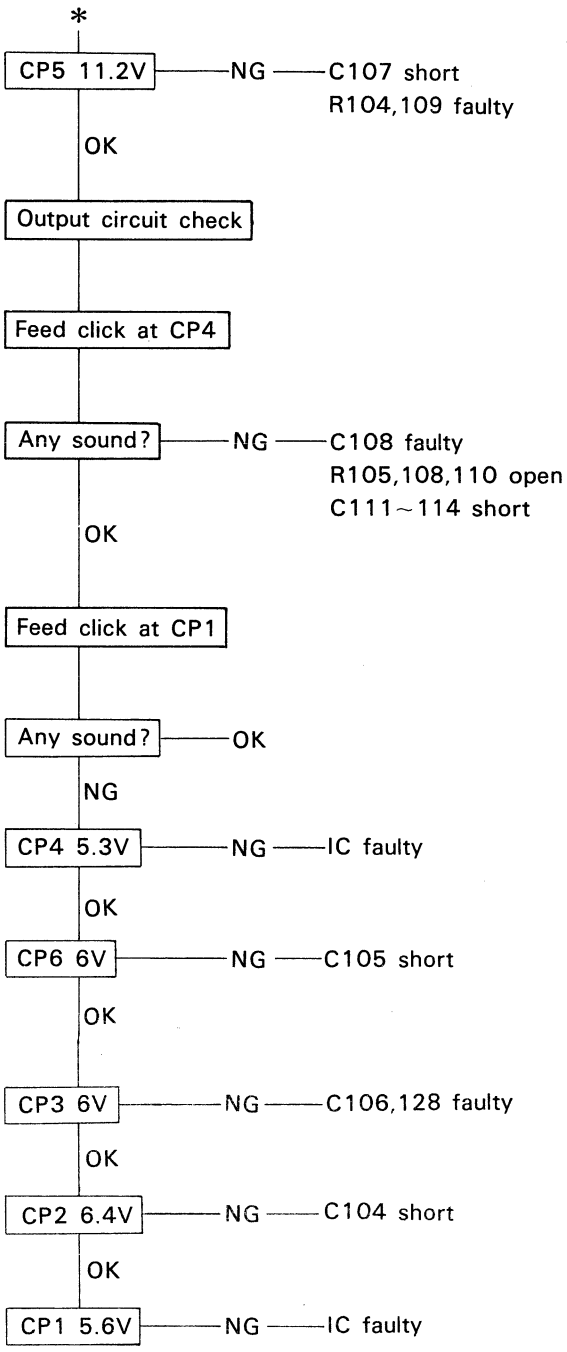


723-5000-11	Hex. nut (M5)	3
731-3006-89	Taptight (M3x6)	3
734-5010-31	Double sems hex. bolt (M5x10)	3
734-5016-31	Double sems hex. bolt (M5x16)	3
740-5000-10	Flat washer (M5)	3

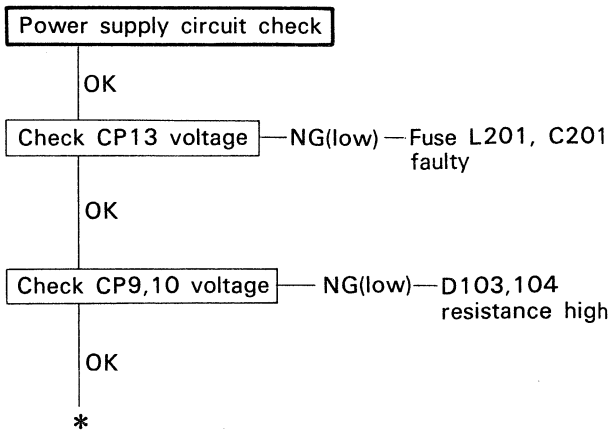
■TROUBLESHOOTING:

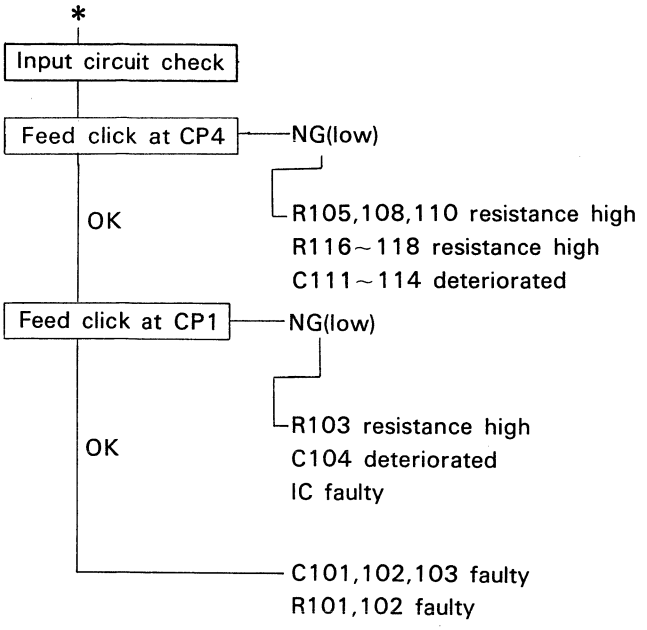
1. No sound





2. Sound is low





3. Sound is distorted

- C103,108 deteriorated, wrong polarity
- C115,116 deteriorated, wrong polarity
- R132,135 faulty

○ Each transistor, IC faulty or deteriorated

4. Oscillation

Oscillation preventing capacitor, resistor faulty

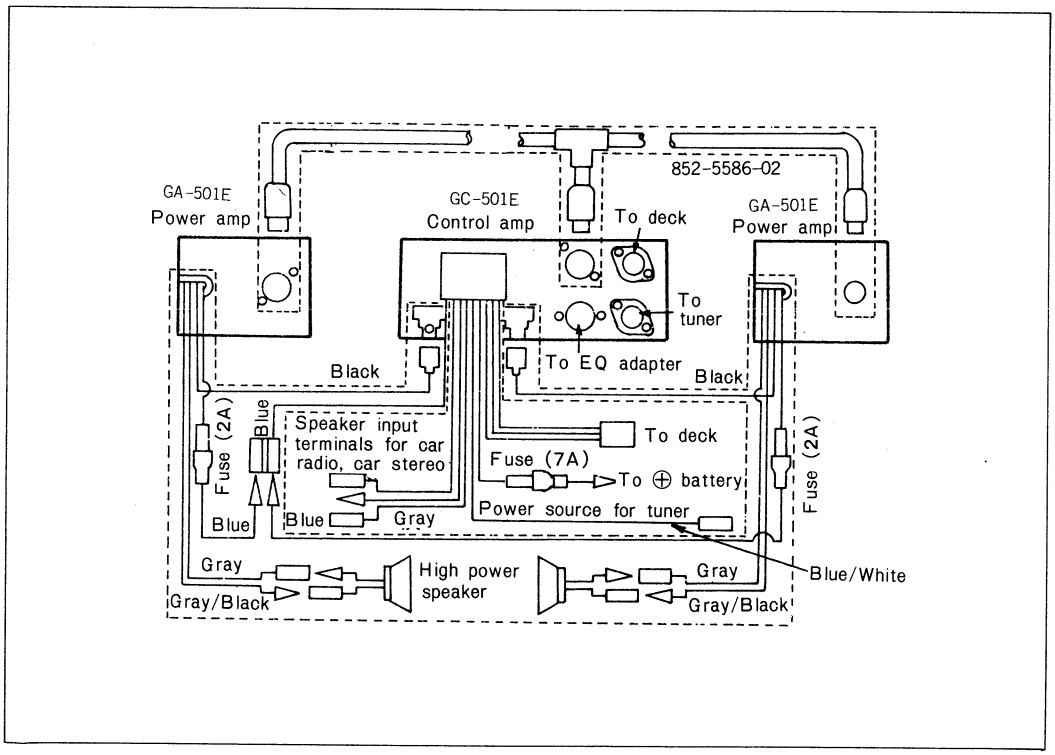
- C105,109,110,111,118,121,122 open, capacity down
- R133,134,C125,126 open
- R120,123 short

5. Considerable distortion

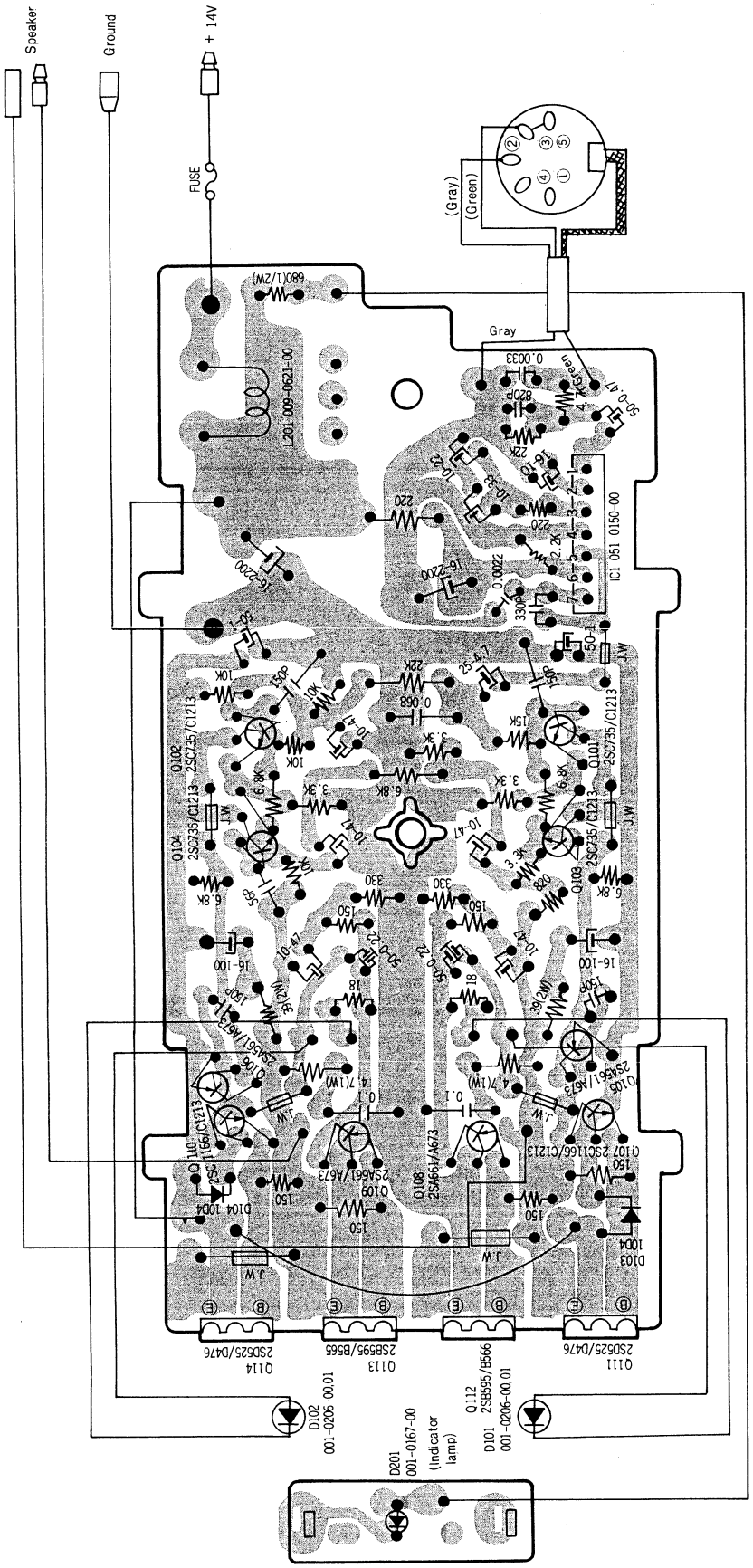
Filter capacitor faulty

- C107,201 capacity down
- C101,102 capacity down
- Imperfect grounding

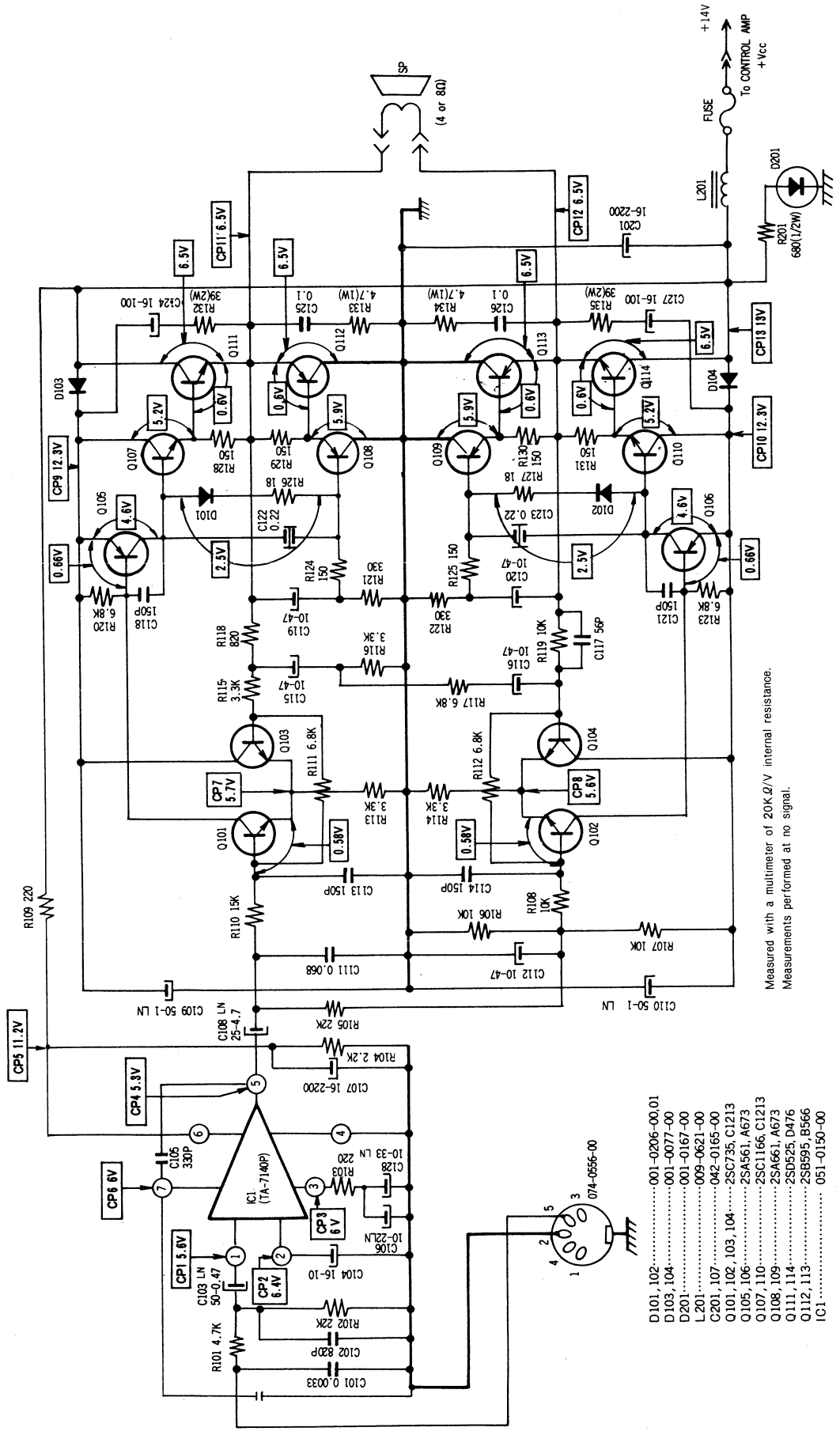
■CONNECTIONS:



■PRINTED WIRING BOARD:



■CIRCUIT DIAGRAM:

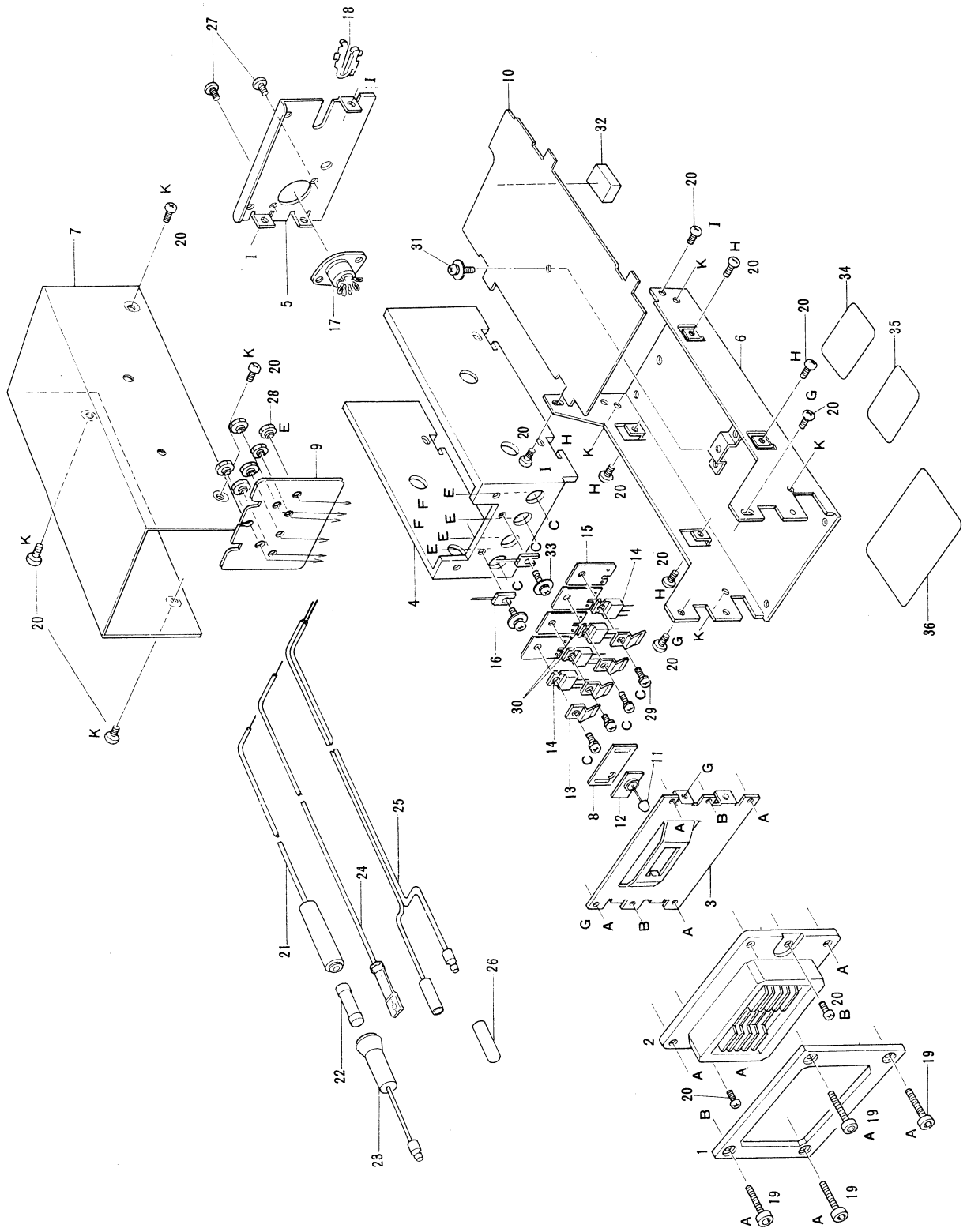


Measured with a multimeter of 20KΩ/V internal resistance.
Measurements performed at no signal.

D101, 102 001-0206-00,01
D103, 104 001-0077-00
D201 001-0167-00
L201 009-0621-00
C201, 107 042-0165-00
Q101, 102, 103, 104 ..... 2SC735, C1213
Q105, 106 ..... 2SA561, A673
Q107, 110 ..... 2SC1166, C1213
Q108, 109 ..... 2SA661, A673
Q111, 114 ..... 2SD525, D476
Q112, 113 ..... 2SB595, B566
IC1 051-0150-00

NOTE) Since this set employs transformerless direct-coupled circuit, be sure to use transistors of the same maker when replacing transistors.

■EXPLODED VIEW:



■PARTS LIST:

◎Main section

REF.NO.	PART NO.	DESCRIPTION	P.C.S
1	370-3120-00	Escutcheon	1
2	370-3121-00	Escutcheon	1
3	330-6371-00	Indicator bracket	1
4	313-1015-00	Heat sink	1
5	307-0285-00	Rear cover	1
6	311-0936-00	Lower case	1
7	310-0920-01	Upper case	1
8	099-4823-00	P.W.B	1
9	099-5019-00	P.W.B	1
10	099-5018-01	P.W.B	1
11	001-0167-00	LED(indicator)	1
12	335-0887-00	Indicator holder	1
13	079-0002-00	Transistor holder	4
14	103-0525-15	Transistor (2SD525-O)	2
15	078-0022-00	Insulator sheet	4
16	001-0206-00	Diode(STV-4H-G)	2
17	074-0556-00	Outlet socket	1
18	335-0580-00	Lead holder	1

REF.NO.	PART NO.	DESCRIPTION	P.C.S
19	716-0333-00	Decoration screw	4
20	731-3006-89	Taptight(M3x6)	14
21	850-1938-00	A-lead	1
22	120-0020-00	Fuse(2A)	1
23	850-1977-00	A-lead	1
24	850-1978-00	A-lead	1
25	851-2209-00	Speaker lead	1
26	335-0950-00	Lead cap	1
27	714-2605-89	Machine screw (M2.6x5)	2
28	725-0182-00	Plate nut(M3)	6
29	732-3008-11	Sems screw(M3x8)	4
30	101-0595-15	Transistor (2SB595-O)	2
31	735-3008-11	D-sems screw (M3x8)	1
32	345-2574-02	Rubber pad	1
33	735-3012-11	D-sems screw (M3x12)	2
34	286-3678-00	Set plate	1
35	285-0656-00	Guide label	1
36	285-0748-01	Guide label	1

◎Electrical section

REF.NO.	PART NO.	DESCRIPTION	P.C.S
$D_{101,102}$	001-0206-00	Diode(STV-4H-G)	2
$D_{103,104}$	001-0077-00	Diode (10D4)	2
D_{201}	001-0167-00	LED	1
L_{201}	009-0621-00	Choke	1
$C_{107,201}$	042-0165-00	Electrolytic capacitor (16V2200μF)	2
IC_1	051-0150-00	IC(TA-7140P)	1
$R_{106,107,108,119}$	111-1031-32	Film resistor (¼W10KΩ)	4
$R^{124,125,128}_{129,130,131}$	111-1511-32	Film resistor (¼W150Ω)	6
R_{110}	111-1531-32	Film resistor (¼W15KΩ)	1
$R_{126,127}$	111-1801-32	Film resistor (¼W18Ω)	2
$R_{103,109}$	111-2211-32	Film resistor (¼W220Ω)	2
R_{104}	111-2221-32	Film resistor (¼W2.2KΩ)	1
$R_{102,105}$	111-2231-32	Film resistor (¼W22KΩ)	2
$R_{121,122}$	111-3311-32	Film resistor (¼W330Ω)	2
$R_{113,114,115,116}$	111-3321-32	Film resistor (¼W3.3KΩ)	4
R_{101}	111-4721-32	Film resistor (¼W4.7KΩ)	1
R_{201}	111-6811-42	Film resistor (½W680Ω)	1
$R^{111,112,117}_{120,123}$	111-6821-32	Film resistor (¼W6.8KΩ)	5
R_{118}	111-8211-32	Film resistor (¼W820Ω)	1
$R_{132,135}$	114-3901-61	Film resistor (2W39Ω)	2
$R_{133,134}$	114-4791-52	Film resistor (1W4.7Ω)	2
C_{129}	141-2222-11	Polyester capacitor (0.0022μF)	1
$C_{133,134}$	141-1042-15	Polyester capacitor (0.1μF)	2
C_{101}	141-3322-11	Polyester capacitor (0.0033μF)	1
C_{111}	141-6832-14	Polyester capacitor (0.068μF)	1
C_{102}	141-8213-11	Polyester capacitor (820PF)	1

REF.NO.	PART NO.	DESCRIPTION	P.C.S
C_{117}	152-5602-13	Ceramic capacitor (56PF)	1
$C_{113,114}$	156-1512-13	Ceramic capacitor (150PF)	2
$C_{118,121}$	160-1512-05	Ceramic capacitor (150PF)	2
C_{105}	160-3312-05	Ceramic capacitor (330PF)	1
C_{104}	180-1064-32	Electrolytic capacitor (VL16V10μF)	1
$C_{124,127}$	180-1074-32	Electrolytic capacitor (VL16V100μF)	2
$C_{122,123}$	180-2244-62	Electrolytic capacitor (VL50V0.22μF)	2
$C_{119,120}$	180-4764-22	Electrolytic capacitor (VL10V47μF)	2
$C_{109,110}$	181-1053-62	Electrolytic capacitor (VL50V1μF)	2
C_{106}	181-2263-22	Electrolytic capacitor (VL10V22μF)	1
C_{128}	181-3363-22	Electrolytic capacitor (VL10V33μF)	1
C_{103}	181-4743-62	Electrolytic capacitor (VL50V0.47μF)	1
C_{108}	181-4753-42	Electrolytic capacitor (VL25V4.7μF)	1
$Q_{101\sim104}$	● 102-0735-25 102-1213-03	Transistor (2SC735Y) (2SC1213C)	4
$Q_{105,106}$	● 100-0561-15 100-0673-03	Transistor (2SA561-O) (2SA673C)	2
$Q_{107,110}$	● 102-1166-25 102-1213-03	Transistor (2SC1166Y) (2SC1213C)	2
$Q_{108,109}$	● 100-0661-25 100-0673-03	Transistor (2SA661Y) (2SA673C)	2
$Q_{111,114}$	● 103-0525-25 103-0476-04	Transistor (2SD525Y) (2SD476D)	2
$Q_{112,113}$	● 101-0595-25 101-0566-04	Transistor (2SB595Y) (2SB566D)	2

NOTE) Transistor No. marked ● are made by TOSHIBA, others are made by HITACHI.